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Are "words" important for grammatical dependency analysis?

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1. The "word" as an unnatural concept

In Haspelmath (2023a), I defined the word as in (1) – but I did not claim that this was an important step forward:

Definition 1: **word**
A word is (i) a free morph, or (ii) a clitic, or (iii) a root or a compound possibly augmented by nonrequired affixes and augmented by required affixes if there are any.

(1) a. free morph (e.g. *nice, work, now, ouch*)
b. clitic (e.g. *the, to, 's*)
c. root (plus affixes) (e.g. *tree, nice-r, go-ing, re-work, re-place-ment-s*)
d. compound (plus affixes) (e.g. *flower-pot, wind-shield, dog-sit, flower-pot-s*)

The definition brings together four rather heterogeneous types elements, and it introduces a new notion ("required affix") that has not played a role in linguistics before.

Can this concept serve as a foundation for a ***division of grammar into morphology and syntax***? This seems very doubtful.

four heterogenous notions:

free morphs: morphs that can occur on their own (Bloomfield 1933),
e.g. *nice, work, now*

clitics: morphs that are **bound** (= not free), but not class-selective
(= they occur on roots of different classes), e.g. the, to

roots (plus affixes): e.g. *tree* – this is NOT a free form (*tree* is not a possible utterance),
but it has no required affixes
e.g. *tree-s* – this is a free form (a root plus affix)
BUT NOT: Russian *derev-* 'tree', which is not a free form
and has required affixes (e.g. Nom.Sg. *derev-o*)

compound: e.g. *flower-pot*, but NOT: *bird's nest*,
or French *chemin de fer* 'railway' (linking element *de*)

What do these four kinds of expressions/forms have in common?
(Not clear at all.)

In alphabetic writing, spaces every five letters or so seem to be very useful – maybe that's all?

2. Is lexicalism well-motivated?

Dependency grammars typically deal with dependencies between **words** (cf. Hudson's *2010 Word Grammar*), e.g.

> "UD follows traditional grammar in giving primary status to words. Words are the basic elements connected by dependency relations; they have morphological properties and enter into syntactic relations. The primacy of words can be understood as ***a commitment to the lexical integrity principle*** (Chomsky 1970; Bresnan and Mchombo 1995; Aronoff 2007), which states that words are built out of different structural elements and by different principles of composition than syntactic constructions." (de Marneffe et al. 2021: 259)

(Similarly de Marneffe et al. (2024: 582): "commitment to lexicalism")

The same view is also found in Mel'čuk (2016: 30):

> **Postulate 3: The sentence and the word are basic units of linguistic description**
>
> The description of the $\{SemR_i\} \Leftrightarrow \{PhonetR_j\}$ correspondence (see (6), *2.3.2*, p. 24) requires two intermediate levels of linguistic representation:
>
> syntactic representation [= SyntR], reflecting the specific properties of sentences,
>
> and
>
> morphological representation [= MorphR], reflecting the specific properties of words.

In generative grammar, too, lexicalism was long dominant (e.g. Kiparsky 1982; Anderson 1992; Bresnan 2001).

However, it is not even clear whether lexicalism is an **assumption** (so that one can be "committed" to it), or a **hypothesis** (that is subject to empirical testing).

It appears that some misunderstandings have arisen from the fourfold ambiguity of the word "lexical" (Haspelmath 2024):

- lexical entity as ***word-form*** (or simply ***word***) (2024: §3)
- lexical item as ***lexeme*** (an abstract element based on a root) (2024: §4)
- lexical item as ***inventorial item*** (an item of the ***inventorium***) (2024: §5)
- lexical item as ***mental item*** (an item of the "mental lexicon" or ***mentalicon***) (§6)

"Words" (as determined by spaces in alphabetic writing) have four stereotypical properties:

(2) a. written solid between spaces (= word-forms, §3)
b. contentful (vs. semantically poor or empty) (= lexemes, §4)
c. idiosyncratic (vs. predictable) (= inventorial items, §5)
d. memorized (vs. constructed online) (= mental items, §6)

3. The seven basic concepts of morphosyntax

The notions of "morpheme", "word", "phrase", "rule" and "lexicon" are often taken to be basic for morphosyntax, but I think it is better to start out with the seven notions in Table 1:

meanings
shapes
forms (or expressions)
boundness
classes (of forms or constructions)
constructions
constructional paradigms

Table 1. Seven basic notions of morphosyntax

A ***morph*** is a minimal form/expression (Haspelmath 2020), and ***affixes*** and ***clitics*** are two subtypes of bound morphs (Haspelmath 2023b). A ***root*** is a contentful morph that can occur without another contentful morph (Haspelmath 2025b).

The ***word*** notion can be defined in terms of these derived notions, but not in a natural way (§1).

Excursus: *Why define word at all?*

In science, unnatural terms do not seem to have a place – scientists want to understand nature, and "carve nature at its joints". Often, as scientists make progress, older terms are simply abandoned (e.g. "phlogiston" in chemistry, "ether" in physics). And indeed, some linguists tried to describe languages entirely without a "word" notion (cf. Togeby 1949).

However, linguists have not generally accepted the idea that the "word" notion should be abandoned – so my 2023 paper makes a concrete proposal for an unnatural definition. If a linguist wants to keep "word" but does not accept my definition, they now have a concrete target to compare their "word" notion with.

So I changed my mind: Instead of advocating that we should abandon "word", I decided to define "word", though I am not sure whether this definition can be useful.

The seven basic notions of Table 1 are so general that they apply both at the **general-comparative** level (g-linguistics) and at the level of **language-particular** description (p-linguistics, Haspelmath 2021b).

Most of the terms that we use on an everyday basis come from some particular language (e.g. “preposition”, “root”, “movement”) and were extended to other languages. However, we must distinguish:

– language-particular concepts are defined in **language-particular terms**
(“each language has its own categories”)

– general-comparative concepts are defined in **general terms**, i.e.
using the same criteria in all languages (Haspelmath 2010; 2018)

For example, when talking about Ancient Greek Clitics, we must make sure to apply Ancient Greek criteria (in terms of lack of stress and the effect on the host) – clitics in general are defined in a different way (Haspelmath 2023b).

e.g. Ancient Greek	*te* ‘and’	both Clitic and clitic
	esti ‘is’	Clitic, not clitic (but clitic cluster)
	dé ‘however’	clitic, not Clitic (but Particle)

In general, such discrepancies between the g-use and the p-use of linguistic terms are unavoidable – but sometimes linguists use capitalization for language-particular terms (e.g. Comrie 1976; Haspelmath 2010).

It may well be that “Word in language L” is a useful term in a particular language L, but its definition cannot normally be used for other languages. The language-particular nature of “Word in L” has occasionally been noted:

> Lyons (1968: 206): “It follows from these facts that what we call 'words' in one language may be units of a different kind from the 'words' in another language.”

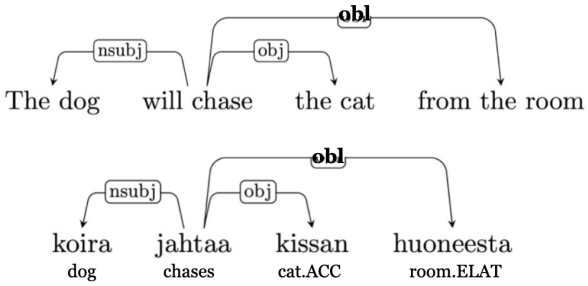
> Spencer (2006: 129): “There may be clear criteria for wordhood in individual languages, but we have no clear-cut set of criteria that can be applied to the totality of the world's languages…”

If different criteria are applied, we do not get the same type of expression, and therefore using the same term (“word”) in these cases can be confusing and should probably avoided.

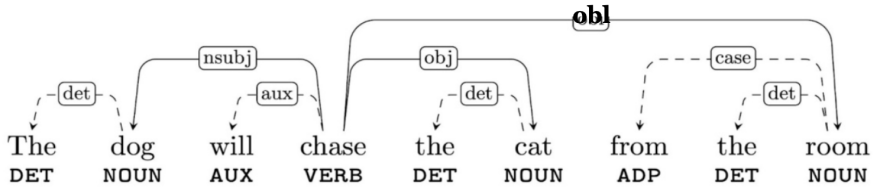
4. Dependency syntax could be extended to the level below the word

There is no reason why dependency trees should not “look inside words”, i.e. include nodes that are parts of words.

De Marneffe et al. (2024: 552) compare English and Finnish and note that they are more similar if English function words are backgrounded:



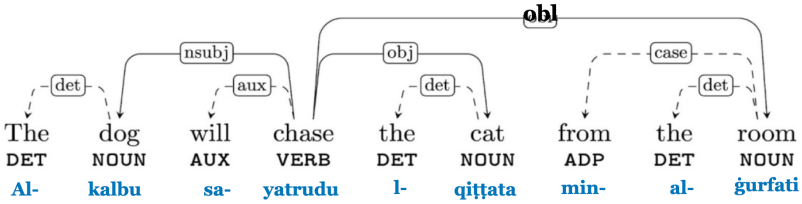
In this way, they justify the position of function words in English, as "dependents" of the content words to which they belong (de Marneffe et al. 2024: 559):



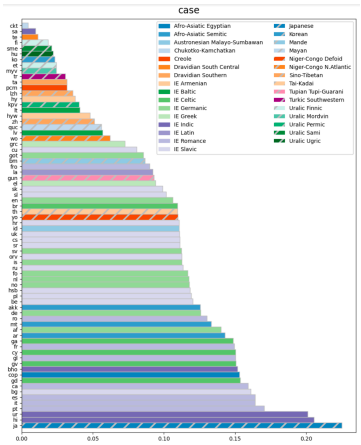
But affixes could be treated in exactly the same way. Consider the Arabic translation of this sentence:

(3) Standard Arabic (based on Google translate)
Al-kalbu sa-yatrudu l-qiṭṭata min-al-ġurfati.
DEF-dog FUT-chases DEF-cat ABL-DEF-room
'The dog will chase the cat from the room.'

If the affixes of Arabic are taken into account, it becomes still more parallel to English:



In fact, the differences that appear if one does NOT take affixes into account lead to seeming typological differences which are not real differences, e.g.



(de Marneffe et al. 2024: 572)

Here it seems that Romance languages, Hindi-Urdu and Japanese have a lot more case/adpositions than Hungarian or Turkish,

but if one treats the flags (case markers/adpositions) of the languages uniform, the difference disappears:

– it is ***not a real typological difference***, but primarily a spelling difference!

5. What is a "dependency" in dependency syntax?

Dependency grammarians rarely say exactly how "dependencies" are defined. Everyone agrees that verbal arguments and modifiers are dependents of the verb, and nominal modifiers are dependents of the noun – but otherwise there are many disagreements.

There is also agreement that Tesnière's ***régissant*** corresponds to ***head***, and ***subordonné*** to ***dependent*** (the latter since Nichols 1986).

But we do not always know which word is head and which is dependent (see Zwicky 1985; Corbett et al. (eds) 1993).

For example, Hudson (2010: 289) says that English determiners are heads of nominals, e.g.

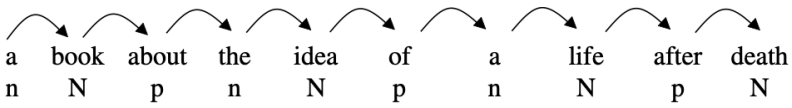
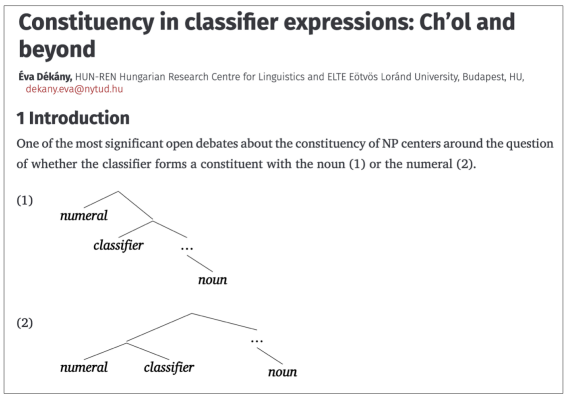


Figure 11.4 *A typically simple dependency analysis of a complex noun phrase*

The debate about determiners as heads or dependents has been raging since 1987 (Abney 1987), and no progress seems to be in sight (see Freywald et al. (eds) 2022 for the ongoing debate).

Likewise, constituency is my no means always clear in phrase structure grammars. For example, Dékány (2024) notes the longstanding controversy about constituency in classifer constructions:


Constituency in classifier expressions: Ch'ol and beyond

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1 Introduction

One of the most significant open debates about the constituency of NP centers around the question of whether the classifier forms a constituent with the noun (1) or the numeral (2).

(1) *numeral* *classifier* … *noun*

(2) … *numeral* *classifier* *noun*

Why haven't we resolved these issues yet, even after decades of research?

It seems that the premise is wrong: That only "dependency" relations or only part-whole relations are at the core of syntactic hierarchical structure – instead, it seems that **quite a few different types of relations** are relevant for syntactic structure.

Reducing everything to dependency or constituency seems to be impossible.

It is certainly possible to treat both predicate-argument relations and modifier relations as "dependencies", and to deal with "function words" in some ad hoc way (by means of additional relations that are squeezed into the tree). However, this leads to artifacts.

This was actually recognized by de Marneffe et al. (2024: 583):

> "…the tree-shaped representations employed in UD must be understood as **multi-relational**, with relation labels crucially indicating what kind of relation is assumed to hold between a parent and a child. Some of these relation labels correspond to central dependency relations like subject and object, but many of them do not."

If this is so, then maybe Universal Dependencies should really be called "Universal Arboreality" – because what all annotations have in common is that they are formally tree-shaped.

6. Functions vs. strategies, and "surface orientation"

Constructional comparative concepts can be notional entities or formal entities, e.g.

notional	**formal**
comparative construction	serial verb construction
inalienable poession construction	incorporation construction
experiential construction	ergative construction
polar question construction	extraposition construction

These are called ***construction-functions*** and ***construction-strategies*** here, following Croft (2022) (see Haspelmath 2025a).

> (Croft says "constructions" and "strategies", but strategies are of course constructions, too.)

For a construction-function, a typology may ask about **types of strategies:**

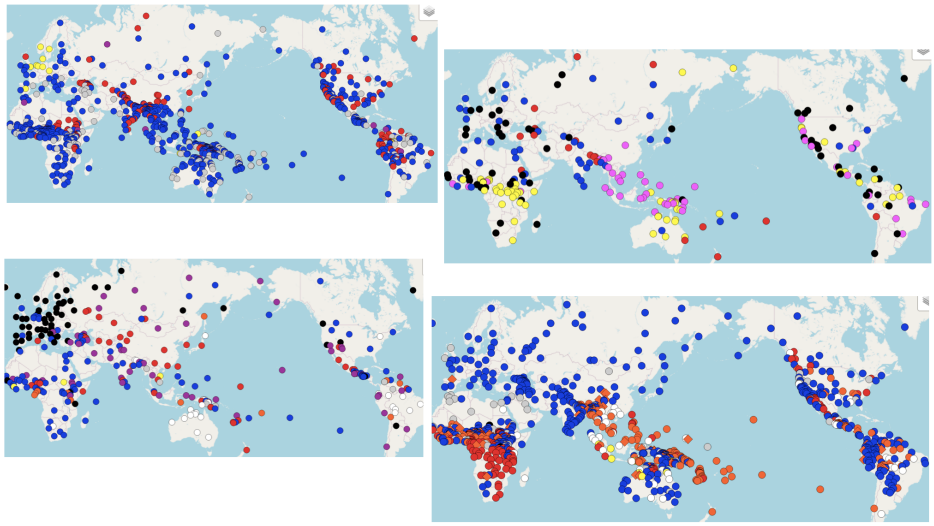
e.g. formal types of ***polar questions*** (Dryer 2005c)
formal types of ***predpossessive clauses*** (Stassen 2005)
formal types of ***relative clauses*** (Dryer 2005b)
formal types of ***transitive constructions*** (OV vs. VO, Dryer 2005a)

For a construction-strategy, a typology may ask about additional meanings (**coexpression patterns**):

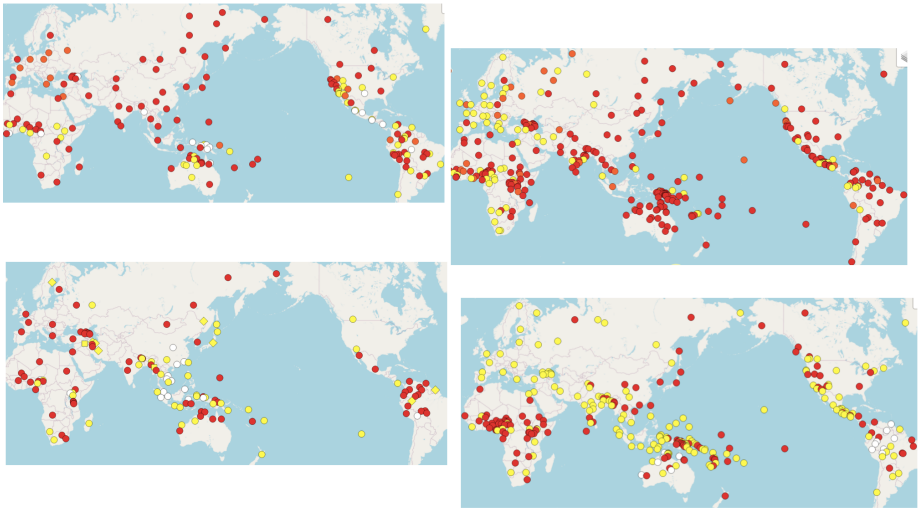
e.g. add. meanings of ***reciprocal markers*** (e.g. reflexive; Maslova & Nedjalkov 2005)
add. meanings of ***comitative flags*** (e.g. instrumental; Stolz et al. 2005)
add. meanings of ***relativizers*** (e.g. genitive flag; Gil 2005)
add. meanings of ***nominal conjunctors*** (e.g. verbal conj.; Haspelmath 2005)

Interestingly, these two types are different in *WALS* in terms of symbol colours: types of strategies usually include blue and red, while the coexpression patterns show red and yellow.

WALS chapters about construction-functions (blue and red):



WALS chapters about construction-strategies (red and yellow):



Universal Dependencies:

Annotation primarily in terms of construction-functions, less so in terms of strategies.

However, it is not correct to say that

> "Croft (2001, 2016) gives a construction-based account of typological variation based on two types of comparative concepts: **universal constructions** and **language-specific strategies**." (de Marneffe et al. 2024)

Both ***functionally defined constructions*** and ***formally defined strategies*** are universal, in the sense that they are comparative concepts that are defined uniformly across languages, using the same criteria.

But functionally-based comparison is of a different nature than formally-based comparison, and UD is optimized for the former.

To facilitate the study of word order generalizations (e.g. Futrell et al. 2020), we need annotation in terms of the functionally defined notions "verb", "object", and so on.

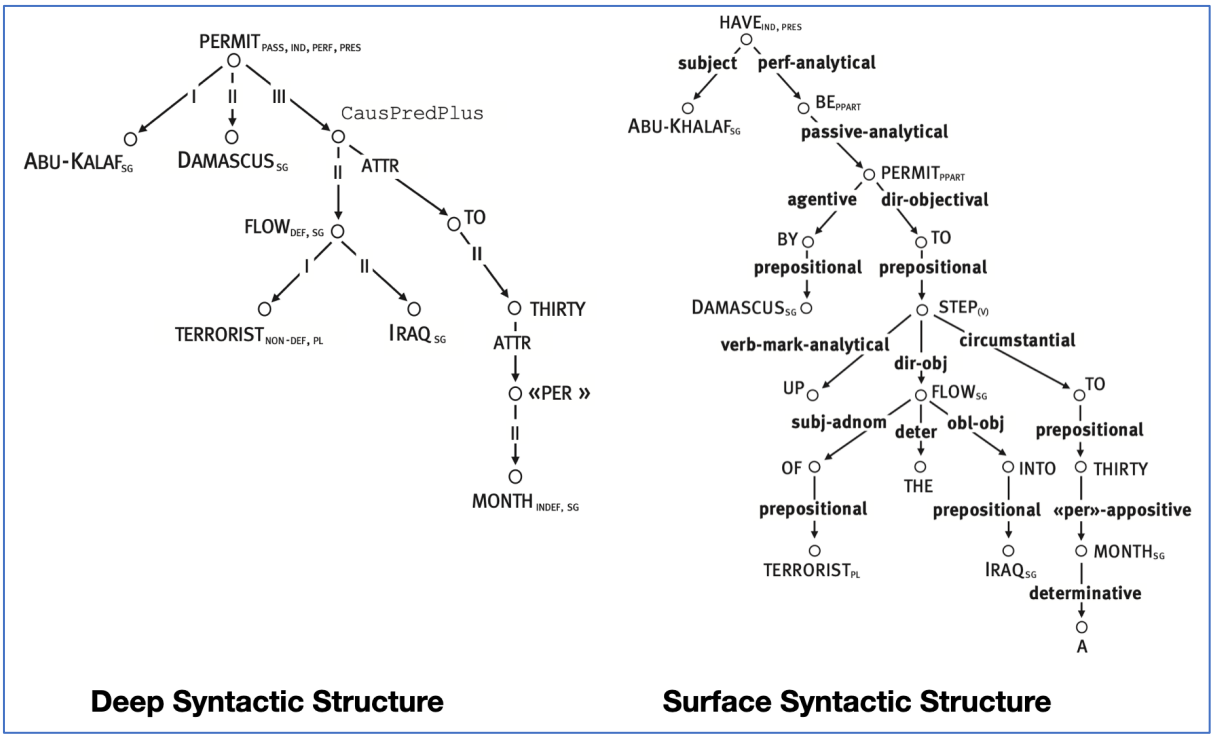
How does this relate to "surface" vs. "deep" syntax? De Marneffe et al. (2024: 550) say:

> "UD does not attempt to capture in its structural representations all aspects of ***surface realization and constituency***, and these representations therefore may appear quite different from frameworks that use dependency structure primarily to analyze ***surface syntactic structure***."

It seems that the difference between UD and approaches like SUD (Gerdes et al. 2018; Osborne & Gerdes 2019) is that UD is more interested in **predicate-argument relations** and **modifier relations**, and less so in formal strategies.

The UD annotation is thus "more notional-semantic", and "less formal".
In Mel'čuk's (2021) framework, these two approaches roughly correspond to "deep syntax" and "surface syntax", as illustrated by the two different representations of the sentence (4) (2021: 13-14).

(4) *Abu-Khalaf has been permitted by Damascus to step up the flow of terrorists into Iraq to 30 a month.*



Mel'čuk says explicitly that the Deep Syntactic Structure is more "meaning-oriented", and the Surface Syntactic Structure is more "text-oriented" (= more formal).

Thus, the "deep vs. surface" contrast is similar to the use of these terms in the 1960s, when many linguists understood the contrast between **deep** and **surface** structures as one between more **semantic** and more **formal** structures.

(But that was a misunderstanding, so the term SUD for *Surface Universal Dependencies* seems to be a misnomer.)

7. Coarseness and universality

Universal applicability arises from general criteria that are not specific to individual languages – it is not the same as coarse-grainedness. Compare the following passage:

> "The UPOS [universal part-of-speech] categories are **deliberately coarse-grained** to be broadly applicable, but in many languages words participate in paradigms of forms that express extra features, such as number or tense." (de Marneffe et al. 2024: 555)

Many linguists think that fine-grained studies are possible only for particular languages, and that typology must be coarse-grained, but this is wrong.

Typology can be fine-grained, e.g. when an author examines dozens of contexts in which a given meaning occurs (e.g. Wälchli 2024 on 'only' in dozens of languages, using parallel texts).

Language-particular research can be coarse-grained, e.g. when someone studies relative clauses in Hungarian and only compares subject and object relative clauses, while ignoring the tense of the verb.

Coarse-grainedness contributes to greater comprehensibility by a diverse audience, but not to comparability.

Thus, the following is not right:

> "the exact criteria for drawing the line between different categories **are by necessity language-specific**. For example, the category **AUX** (for auxiliary) is reserved for words encoding the tense, aspect, mood or evidentiality status of the predicate of a clause, but the extent to which these functions are expressed by grammaticalized particles or auxiliary verbs varies across languages, as do the criteria for identifying these words." (de Marneffe et al. 2024: 555)

If different criteria are applied in different languages, one does not identify the same kind of phenomenon (recall the discussion of wordhood criteria earlier).

Unfortunately, linguists often use different criteria for different languages, but this is not justifiable, as far as I can see.

compound vs. phrase
"In English, some compounds are distinguished from syntactic phrases by stress (contrast *a 'black 'board* and *a 'blackboard*, for instance). **In other languages there may be special morphophonemic processes** which apply between the elements of compounds, there may be tone sandhi patterns or particular tonal patterns which apply to compounds, there may be some phonological merger between the elements of the compound (Dakota, Hebrew, …), and so on." (Bauer 2001: 695).

count nouns vs. mass nouns
"The mass-count distinction is a morpho-syntactic distinction among nouns, and there a range of diagnostics for it. **Not all languages share the same diagnostics**, and there is always the question whether particular diagnostics are just a reflection of the morpho-syntactic distinction or whether they can be explained semantically" (Moltmann 2020: §1.1)

8. Conclusion

Overall, I am of course very sympathetic to dependency syntax and to the Universal Dependencies project and framework.

However, I have formulated the following caveats during this talk:

(i) the definition of "word" that I proposed in 2023 is an **unnatural concept** (§1);

(ii) even though **lexicalism** is (or was) widespread in linguistics, there do not seem to be good reasons for assuming or hypothesizing that word structure is different from sentence structure (§2)

(iii) basic concepts of morphosyntax and meaning, shape, form, boundness, class, construction and constructional paradigm, not "morpheme", "word", "category" or "sentence"; these basic concepts can be used as g-concepts or as p-concepts (§3)

(iv) dependencies can be identified not only between words, but also between parts of words (morphs); by omitting these, one risks getting a skewed picture (§4)

(v) the very notion of "dependency" is not very clear; predicate-argument and modification constructions are treated uniformly in dependency grammars, but there are many other relations that have no clear place in the tree (§5)

(vi) the distinction between construction-functions and construction-strategies is helpful for describing the difference between UD and Osborne & Gerdes (2019) – Osborne and associates are more interested in forms (and less in comparing languages), while UD is more interested in meaning-oriented annotation (§6)

(vii) coarse-grainedness is not a prerequisite for cross-linguistic comparison (though it facilitates comprehension); comparability follows from uniform definitions, and it can be based on coarse-grained or fine-grained concepts alike (§7)

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